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TABLE OF CONTENTS

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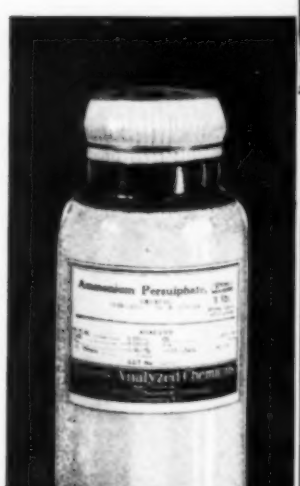

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DOES HIGH SCHOOL CHEMISTRY SERVE THE PROPER PURPOSE?

According to the two speakers who addressed the February meeting of the New York Chapter, it does, and it does not; it all depends upon the point of view. And a study of the contrast in the points of view of Mr. B. Whitney Ferguson of the Brooklyn Technical High School, and of Mr. Jesse Whitsit, of the DeWitt Clinton High School, would indicate that basically it all depends upon the kind of school.

In some schools chemistry is simply thrown in among the many courses to which high school students are exposed in order to complete their counts for graduation. If it "takes" on some, they may be stimulated to continue the study, and may actually turn out later to be chemists; if it does not, well, the time spent can always be charged to "culture."

Until Mr. Ferguson recounted something of the early history of the high schools in this country, perhaps many of us had not given much thought to why chemistry is included in their curricula at all. As Dr. Joseph F. X. Harold once pointed out to us "chemistry is the only profession that is taught as an arts course in high school and college; and this leads to abuse, because it gives the high school student too good a chance to learn the language, put out his shingle as a chemist and take money from unknowing clients."[1]

Any fears that these Technical High School graduates might be encouraged to foist themselves on the world as professional chemists were allayed by Mr. Ferguson's very definite statements before he finished talking. And to meet anticipated criticism of high school schedules, he said at the outset:

"If we could properly measure how well the public high schools have prepared the students of the United States for their life work, and if we could accurately predetermine what their needs of the future will be, then we could plan a course of instruction and determine the type of school best for our children. This is like trying to determine the distance to the sun by using a yard stick. With such a short measure, some one would miss in the count and be the cause of a disagreement. In education, we are much in the same position because we have not been able to measure accurately, since we have a variable quantity—the pupil. He is the pupil today but the citizen tomorrow."

In discussing the gradual increase in importance of chemistry in high school curricula, Mr. Ferguson told something of the evolution of our modern high schools from their predecessors, the select "academies." These gave their students a classical education, preparing them for college. They were not free, so that the average person could not afford to send

[1] "Various Phases of Licensing," *The* CHEMIST, May, 1929.

his child to them. The curriculum was not extensive but often did include some science, as for example, readings in natural history, and practical exercises in agriculture. They were not intended for the average person, and of course, were too expensive.

In the early part of the nineteenth century, public opinion and the wants of a large class of citizens had long been calling for a school in which those who had not the desire or the means of obtaining a classical education, might receive instruction in many branches of great practical importance. The people were desirous of obtaining a more practical education, since the commercial and the industrial activities of the towns were demanding a different training from that offered by the schools designed to prepare them for college. Thus the scientific and business subjects made their entrance into the schools as a preparation for life rather than as a preparation for college.

Once the schools of this new type were established, the demand increased and consequently the number of such schools increased proportionately. The first high school in New York was established through the efforts of a professor of chemistry and natural philosophy, who said in his first report: "It should never be forgotten, that the grand object of this institution is to prepare the boys for such advancement and such pursuits in life, as they are destined to, after leaving it." Thus we see that the high school in New York at least began with a very practical aim.

During the time of the growth of the sciences and the announcement of new discoveries, the high schools were not under the proper supervision to insure their keeping pace with the new scientific spirit of investigation. Chemistry, for instance, was a lecture course and its true industrial importance was not realized. Experiments were performed by the teacher, and the results recorded in the lecture notes of the students.

In 1872, Harvard University placed physics on the list of subjects acceptable for entrance requirements. This started the movement for placing all sciences on this list and was the means of exerting great influence in modifying the character of instruction in secondary school science. It was necessary for the college to state the entrance requirements, and this proved a means of bringing all high schools to a common standard of instruction. The colleges set that standard and the high schools responded by trying to live up to those standards. The colleges also furnished the teachers, so it is not surprising that the high school course rapidly approximated the general type of college course.

The high schools by now had lost that practical aim that gave them birth, and they became college preparatory schools. The academies gradually disappeared and the high school assumed their work, even if only a small percentage of their graduates entered college.

In New York State was established the state board of Regents which controls the examinations given in the high schools of New York State. They prepare a set of examination questions on chemistry, for instance, for all high schools, which is given on certain days in the year and at certain places designated by them. They control the conditions and set the rules under which the examinations are held, and actually set the standard for chemistry instruction in the average high school. They issue a syllabus of the course of instruction and thus endeavor to bring chemistry in all high schools to a common footing. Passing this examination is also credited by most colleges toward their entrance requirements without further examination.

When the first Regents' examinations were given, they were universally hailed as a big step forward. Some students were failed because they did not understand this new type of test. This showed the need of the high schools of the state for some central authority to bring the course of high school instruction from its haphazard condition to a common standard.

The high school course was soon accepted as a preparation for college, and it did not appear to matter whether all graduates were going to college, but the emphasis was placed on the fact that they were prepared to go.

The Regents of the University of the State of New York issue a syllabus which covers the topics of the course to be followed and on which the questions for the examination are based. In chemistry, they also list the demonstrations to be given. The latest revision of the chemistry syllabus was in 1926; and the one previous to that was in 1906. This lapse of twenty years between revisions appears a long time when one considers the rapid advance of chemistry. It would appear that there should be a revision every ten years. [In expressing himself thus, *it would appear* that Mr. Ferguson shows very commendable self-restraint!—*Editor*]

The World War brought home to many people the practical importance of chemistry, and gave rise to a demand for the *pandemic* course, which would bring the student to full appreciation of the industrial age in which he lives, and better understanding of the rapid advances being made. There had been so much emphasis on the theoretical subject-matter that the student failed to grasp the extent of the revolution that chemistry had brought into his life. This theoretical matter may be mastered to pass a test, but leaves no lasting impression on the student, with the result that he soon forgets it. He sees no direct or practical application to his daily life, with the result that it soon fades from his mind. The result of the Powers' test which was given to about 10,000 students one year after passing chemistry, makes a teacher wonder of what direct benefit

the present high school chemistry has been to the student. The difficulty is, how are we to teach the application of chemistry before the student has grasped the theory? How is a teacher to explain that chemistry is a wonder worker in the rapid advance of our industrial age without having the theory to use to substantiate his claims? That is a question still open for discussion as no real solution has been found.

The committee appointed for the revision of Regents' chemistry recommended several practical changes. Problems on the corrections of gas volumes, determination of formula percentage, composition and vapor density, were to be omitted because of the slight chance of practical application. The chief addition is the introduction of the electron theory of matter in a simple form, the increased used of dissociation hypothesis, and stressing the principle dealing with the question, "Why reactions go on to an end?"

It is not only important to know what you should teach in chemistry, but also why and how you should teach it. We have certain cardinal principles of education, such as, proper fulfillment of the duties of life, the wise use of leisure, attainment of good health, useful citizenship, and development of character. The proper study of chemistry leads to a realization of these principles as is shown in the following list of some of its objectives:

a To give to pupils a broad and genuine appreciation of what the development of chemistry means in modern social, industrial, and national life.

b To satisfy the natural interests in the things and forces of nature with which men are surrounded and with which they must deal; to give information which is interesting, purely for its own sake.

c To provide opportunity for acquaintance with such applications of chemistry as contribute to the maintenance of the health of the individual and the community.

d To develop such broad concepts and natural laws as the ultimate composition and indestructibility of matter, nature of chemical composition, interrelation of chemical elements, etc., to the end that science and reality may function in place of superstition and uncertainty in explaining natural phenomena.

e To contribute such specific ideals, habits, and concepts as those of accuracy, achievement, persistency, open-mindedness, honesty, cause and effect, which are essential to the study of science.

f To develop system, order, neatness, and possibly other attributes to the end that they will function in the ordinary affairs of life.

g To give such training as will result in increasing respect for the work of recognized experts.

h To give children full opportunity to indulge in the playful manipulation of chemical material in order that they may explore the world of reality as widely and as deeply as possible.

i To provide opportunity for acquaintance with the elementary laws of nature which aid in understanding those citizenship problems which arise in con-

nection with such topics as utilization of waste products, elimination of smoke, pure foods, etc.

j To provide opportunity for the student to become acquainted with the applications of chemistry to industry for the purpose of educational and vocational guidance and possibly to furnish a beginning of vocational training.

k To provide opportunity for acquaintance with the simpler application of chemistry in public utilities in order that the student may more adequately fulfill the duties of citizenship.

l To make pupils able to read more intelligently and with greater interest articles on chemistry in magazines and in scientific books of a popular character.

m To afford in some measure an opportunity to show the importance of scientific research and to stimulate the spirit of investigation and invention on the part of the student.

The importance of the above objectives is recognized so that chemistry has taken its place as one of the fundamental subjects in a high school curriculum. This answers the question, why we should teach it; but of equal importance is the question, how we should teach it.

In the annual report of Dr. John L. Tildsley for the year 1927–28 called, "Teaching Science as a Way of life," are answers to a questionnaire sent to the students. These are some of the answers: "The study of science has helped me realize the significance of and the beauty of all living things." It has caused "the acceptance of new ideas and a curiosity that knows no limit." Another said: "I think I shall always remember that this course gave me just an insight into another world, one of the many into which a lot of us will never enter, each world having its own great men and its own great works."

This shows how science is taught in New York City High Schools and should be one of the guides to all teachers to arouse imagination, enthusiasm, appreciation, and curiosity of the pupil. When these are aroused, then the students start to think and this is of fundamental importance. An article that appeared last Saturday in *The New York Herald-Tribune* announcing the death of Dr. Faunce, ex-president of Brown University, quotes him as saying that "education is futile unless it teaches the student to think." This, all science teachers try to do, and is sometimes spoken of as teaching the *scientific attitude*. I think President Hoover is a good example of the results of this method. Both his mind and action bespeak a scientific attitude. Haste is avoided and the problem considered from many angles, to obtain the facts. The facts take precedence over traditional beliefs, and argument for argument's sake is not considered profitable. The desire for truth for truth's sake is sought so that it causes contention to be abandoned and the spirit of co-operation to obtain truth substituted. All this is back of President Hoover's fact-finding commission. He is teaching a lesson to the people if they will but listen.

The true scientist never considers that his knowledge is complete or final, but that there is always something new to discover. The scientific attitude also teaches a belief in a natural law that works uniformly and invariably. If we could teach this scientific attitude of mind, so that the student would carry it into later life, what a different citizen he would make!

It is interesting to compare the time devoted to the teaching of science in New York City High Schools with the time spent on other subjects. Dr. Tildsley's report shows that the high school graduates of June, 1928, who met the requirements for graduation made up their program of work as follows:

English	21.2%
Foreign Language	21.0%
History and Social Science	16.4%
Mathematics	11.7%
Science	10.7%
All others to make	19.0%

From this, Dr. Tildsley draws these conclusions:

Inasmuch as 42.2% of the four years' program of these graduates had been devoted to the study of language and literature and 58.6% to the study of language, literature, history, and social science, as against 10.7% to the study of science, it is natural for the science teachers to inquire whether in the high schools of New York City, a city whose life reflects the development of science possibly more than that of any other great city in the world—science has its place in the sun.

If we look back to the beginning of the World War, we can see how it thrust upon the average person the importance of chemistry in the industrial life of the nation. Most of us here tonight remember the frantic effort made to bridge the gap made by the stoppage of certain imports. We soon realized that our chemical industry was a mere infant, that it had not even been fed and reared as a healthy child. Libraries were frantically searched for information that was lacking, and leaves were stolen from valuable books. Everybody was a chemist if he had ever taken chemistry or said that he had. With a dramatic suddenness the truth was thrust upon us that our chemical infant was being called upon to do the work of a man. He responded nobly and developed rapidly, but it was an unhealthy growth. The succeeding years have corrected this condition, so that now he can stand erect as a man and face the world.

During this period of adjustment, it was shown that the chemical industry could no longer rely on an artisan. We had made wonderful advances along the mechanical line, and we could do things better, more cheaply, and more quickly than the people of other countries, but here was a new industry of recent growth that offered a place to a man with

a technical education. He had to know not only what things were happening but why they were happening. The directing could be done by a man who had had a thorough chemical training such as given by any of the recognized colleges, but he needed an assistant who could help him and carry forward his ideas.

From the annual report of Mr. Frederick P. Keppel, President of Carnegie Corporation, the following quotation is given as published in one of our daily papers:

> The engineering education problem which Mr. Keppel outlines is based on the contrast between conditions in England and this country. In the former, he says, reliance is placed almost wholly on schools non-existent in this country, which might be termed Technical Trade Schools, for the trained personnel required in production and operation. In the United States fully half of the engineering college students will not remain permanently in that field, while on the other hand industry could absorb annually thousands of men with the type of training given by the English institutions.

It was Mr. A. L. Colston who, over eight years ago proposed the Brooklyn Technical High School, as a place for such a type of school work in this country, and laid out the course. He wanted the student upon graduation to carry away something that would be useful. He saw that industry needed a person technically trained and that only a technical high school could supply it. He has shown the way so successfully that New York City is soon to have the finest equipped technical high school in the country.

Every student in this school, regardless of his objective, has to receive fundamental instruction in chemistry for a period of one year. A more practical slant is given to this elementary course than is given in other high schools. We do not have to meet Regents or college requirements. Our aim is to give elementary fundamentals and at the same time emphasize their practical application in the technical field. The students bring in scientific and technical articles from the daily press and read and discuss them in class.

The second aim is to give such a course that interest in chemistry is stimulated, so that the boy will know at the end of the year whether he likes chemistry sufficiently and desires to enter our special chemistry course. This course covers the last two years of the high school course. It aims to specialize in chemistry, so that the student will be prepared for the chemical industry. What Mr. Arthur Williams of The New York Edison Company says of their school, "Specialization which gives the student an opportunity to direct his energies to the field in which he is most interested and which will form the basis of his later career," can with equal truth be said of our special chemistry course.

(*Continued on page 24*)

PRELIMINARY REPORT OF THE COMMITTEE ON EDUCATION OF THE AMERICAN INSTITUTE OF CHEMISTS

[This preliminary report is published now so that the membership at large may have the opportunity to discuss it freely. Study it, and let us know what you think of it.—*Editor*]

TO THE COUNCIL OF THE AMERICAN INSTITUTE OF CHEMISTS:

GENTLEMEN:

Your Committee on Chemical Education has made a preliminary study on the educational requirements for the Profession of Chemistry and have formulated the following as a basis for ultimately working out a satisfactory course of professional training.

1. *Recognition of Chemistry as a Profession.*

The first essential to the success of any plan to raise the status of chemistry as a *profession* is the recognition on the part of professional schools that chemistry *is* a profession and that a definite course of training should be included in their curricula indicating to students what the profession demands as minimum prerequisites to qualify for service in it.

It is imperative that the co-operation of colleges, universities, and professional schools be had if the plan of the Institute is to be successful. We are not yet certain what is the best way to secure this co-operation. However, we believe that one way is to seek the aid of the Chemistry Departments of the different schools in formulating the course of training which the Institute believes to be fundamental for the profession.

With the approval of the Council, we propose that the Committee send the attached letter to the heads of the departments of the important schools training chemists and that the replies be carefully studied by the Committee before they make a final report.

2. *Minimum Time Required for the Training of Chemists.*

The Committee has deliberated on this point and agree that six years appear to be the minimum time for a course of training which should be adequate as a foundation for the profession. It is recognized that the fundamental training should be the same irrespective of what particular specialty the chemist elects to follow later in his professional life. At least two years of the six should be devoted to graduate work.

3. *Content of the Course of Training.*

a CHEMISTRY:

It is our opinion that we should make no attempt to specify in detail

the content of the fundamental courses in chemistry. However, we do recommend that we specify the following as the minimum requirement in the fundamentals of chemistry:

(*1*) *General Chemistry*—A minimum of 8 credit hours*
(*2*) *Analytical Chemistry*—A minimum of 8 credit hours
(*3*) *Physical Chemistry*—A minimum of 8 credit hours
(*4*) *Organic Chemistry*—A minimum of 8 credit hours

b PHYSICS:

The fundamental training in physics should include general, theoretical, and experimental work, including *heat, light, electricity*, etc., and should require a minimum of 10 credit hours.

c MATHEMATICS:

It is recognized that modern chemistry is becoming more and more difficult to understand without a comprehensive knowledge of mathematics. It is recommended that the minimum requirement in mathematics be 18 credit hours. The work should include thorough training in *analytical geometry* and *calculus*.

d ENGLISH:

We believe that no study is more fundamental in the preparation of chemists than English. We recommend that the requirement be a minimum of 12 credit hours. The work should include both *rhetoric* and *literature*.

e MODERN LANGUAGES:

A reading knowledge of *French* and *German* is indispensable, and the minimum training for the Profession of Chemistry should require the completion of sufficient work to be equivalent to two full years in each language, or a minimum of 12 credit hours.

f ECONOMICS:

The chemical profession expects that men should be trained in the use and value of quantitative ideas. Irrespective of the special branch of chemistry followed, economic questions will arise and it is believed that a chemist is not adequately trained to appreciate and solve the problems of his profession unless he has had some fundamental training in economics. It is suggested that the requirement be a minimum of 6 credit hours.

g REMAINING SUBJECTS:

Of the remaining 30 hours required for the Bachelor's Degree at least

* By *credit hour* we mean the credit given for three semester hours of work—either three hours spent in laboratory work or one lecture and two hours of study connected therewith. This requirement is based on the standard requirement of 15 credit hours as equivalent to 45 hours of actual work per week.

nine credit hours should be in *philosophy*, *sociology*, and *social science*. The remaining 21 hours should be preferably devoted to subjects which will serve as the basic training for the Minor.

4. Graduate Study.

It is difficult to outline in detail the scope of the work to be covered by the two years of graduate study. We recommend that at least 45 credit hours be devoted to the Major work, chemistry. The exact nature of the chemical courses must vary with the particular requirement of the student. The remaining 15 hours should be devoted to the Minor, which should be in some allied subject or subjects.

Respectfully submitted,
Committee on Education,
The American Institute of Chemists,
M. L. CROSSLEY, *Chairman*

DEAR PROFESSOR:

As you doubtless know, The American Institute of Chemists is striving to place chemistry on a professional basis and emphasize the importance of the profession in modern life. The Committee on Professional Education has prepared the enclosed outline as suggestive of a course of training which should be adequate as a minimum for the profession.

We are anxious to secure your co-operation in formulating a definite course of study which will be broad enough to train men for service in the profession irrespective of the particular field in which they elect to specialize.

We are also eager to secure your co-operation in giving a professional status to chemistry. We believe that we have an obligation to the men and women who are electing chemistry as a life work to see that they know at the outset what the service in chemistry requires of them in training and experience. The course of training for the chemical profession should be as definite as that prescribed for other professions, such as Law, Medicine, and Engineering. The curricula of our colleges, universities, and professional schools should indicate the minimum training required for the profession of chemistry.

We would like to have your comments on the enclosed outline, and suggestions as to:

1. Should other subjects be included?
2. What subjects should be omitted?
3. Would you suggest a different distribution of the credit hours in the different courses?

Yours very truly,
Committee on Professional Education,
The American Institute of Chemists

CHEMISTRY—A MEANS TO AN END

II. The Chemist in Foreign Trade

as told by

HENRY ARNSTEIN[1]

Ever since Dr. Henry Arnstein stood up at the last annual meeting and discussed the opportunities for chemists in the Cuban sugar industry, we knew that he ought to have something interesting to tell us, if we could only persuade him to talk about it.

The note in the February issue about his talk before the Philadelphia Chapter, soon after his recent return from South America, was another hint, and we are pleased to give you the following story in half narrative, half interview form based on information and notes which were extracted from Dr. Arnstein between trips hither and yon.

Henry Arnstein represents very ably one type of those "emigrant chemists" we mentioned last month; *i. e.*, a chemically trained person who can adapt himself to the exigencies of whatever circumstances in which he may find himself, and who has gained enough from his chemical education to be willing and able to grasp an unusual opportunity.

The first question asked of everyone who is to contribute an article under this heading is, "How did you happen to become engaged in this work?" Dr. Arnstein's unexpected answer revealed that he is another of those who were seriously affected by the advent of the liquor prohibition which, if one can believe recent newspaper accounts, is alleged to have existed in this country for ten years.

Dr. Arnstein had been specializing in biological chemistry and in industrial fermentation, associated with a large company which controlled about ninety-five per cent of an industry based on fermentation. Severing this relationship placed him in a rather embarrassing position: should he seek other outlets for his specialized training and experience or should he change to another branch of chemical work?

Feeling that it would be unwise for a man of his age to scrap so much valuable experience for a new venture, Dr. Arnstein decided to capitalize it by transferring his professional activities to "foreign countries where one may drink as much as his pocketbook or his digestive organs can stand." Starting in a small way on the commercial production of industrial alcohol, he has developed a consulting business of unexpected ramifications and seemingly inexhaustible possibilities.

We asked how his chemical education had been useful in fitting him for this kind of work, and learned that in addition to an excellent grounding

[1] Dr. Arnstein is an internationally known consulting chemist, and industrial and efficiency engineer of Philadelphia. He is Chairman of the Philadelphia Chapter, and represents his chapter in the National Council.

in chemical work, Dr. Arnstein had had some experience in Europe as Efficiency Engineer with the Krupp Munition Works. His duties were to go from one plant to another, to check up on reduction of fuel, labor, and overhead charges, and to suggest methods of increasing yields and quality of products. Such experience was of inestimable value in this new work.

The war taught the world many things, not the least of which were the value of co-operation between science and business; and the need for statistical data on business conditions. A classic example of this deficiency is still remembered in the sugar shortage which was felt everywhere during the war. This painful shortage had led to the development of a national sugar industry in many countries which had been dependent upon imports, and had been aggravated by the purchase and hoarding of the Cuban supply. The price of sugar went up like a rocket; the European governments went more intensively into the development of a domestic sugar industry; plants were established in Belgium, England, France, Germany, and Italy; foreign capital invested large sums of money in Mexico where natural conditions are most favorable for sugar culture.

In the meantime, Cuba, which had been producing about two million tons of sugar a year before the war, was producing close to five millions, but with practically every foreign purchaser busily making it at home the export market for Cuban sugar was cut off. The crash was inevitable; and when the effect of the explosion cleared away the world was flooded in sugar.

It was at just this time that Dr. Arnstein was casting about for some means of utilizing his pre-prohibition experience. Something had to be done with the surplus sugar; why not show these sugar-producing countries ways of converting their molasses and surplus cane into industrial alcohol? That was the beginning. After that, it seems that all he had to know was on just what spot he should be when the industrial cat jumped.

For instance: everyone could appreciate that alcohol is a most important chemical raw material, but in most tropical countries there is not a large market for chemical products in general. On the other hand, gasoline is relatively very expensive in these countries; "therefore, it was natural that we try to utilize our wartime experience of converting alcohol into motor fuel and using it in place of gasoline."

Such was the ending of every chapter in this romance of achievement: "something was needed; the conditions were such; so we did so and so." And all recounted in all simplicity, as if it were just any ordinary day's work.

"As soon as we commenced to produce alcohol for motor fuel purposes the price of gasoline was dropped; therefore, to save our clients' investments we began to recover a series of by-products which had formerly

been wasted. We finally proved that alcohol can be made cheaply enough, any place under the sun to compete with gasoline, not only in quality, but also in price."

Before the war, molasses was a valueless by-product of the sugar industry, but before long American alcohol producers went over to the manufacture of alcohol from molasses instead of grain, and to such an extent that it created an actual shortage of molasses. "So we developed a new method of producing sugar. . . ."

It is Dr. Arnstein's belief that any scientist, or any business man, who would succeed must be able to let his prospective clients know just what he can do, and just wherein his service may be useful. Through the scientific articles which he has written in technical publications—on less expensive production of better sugar, on the utilization of by-products to save money spent for imports, etc.—he has convinced not only the producers of sugar but also various government officials that it is their duty to develop their natural resources. He now acts in an advisory capacity to the governments of Argentina, Brazil, and Cuba, suggesting the variety of industries which should be encouraged because of the raw materials available, working over surplus agricultural products into essential commodities, developing their products for which there is an established market, etc.

"The outstanding lesson of the world war is the fact that the political situation prior and subsequent to the war was essentially a question of economics. Political independence cannot be achieved or maintained unless a country is economically free. With this in view, every country seems to be doing its utmost to decrease its imports, because if, in theory at least, the probability of another war exists, governments must assure their independence by developing industries, so that in time of war the essential requirements imported from other countries can be produced at home. Incidentally, such a policy develops the general industry and commerce of a country and establishes greater opportunity for work and employment."

Dr. Arnstein feels that his educational training (he holds three degrees), gave him a splendid foundation for his chosen work, because besides giving him a broad general background it also started him off as a specialist. And knowing that his traveling around must have brought him into contact with many kinds of chemists we were interested in the comparison and contrast which he gave on American and European trained chemists.

"From a strictly scientific point of view the American chemist equals the German or French chemist any day; however, according to my experience, the European chemist has the advantage over the American chemist in his more practical training." He believes, for instance, that

it is not enough to know how to produce sulfuric acid; it is exceedingly important to know how much a pound of sulfuric acid should cost in a given industrial center. He sees inestimable advantage in the European system whereby the average chemical student elects some branch of chemistry or technology, and no matter how often he changes his position, he tries to keep his activities within his chosen field. As a result, in five to ten years the European chemist is considered as an expert—more so than the average American chemist of the same age, who within a few years may shift his chemical interests and type of work with every change of position.

"I recommend specializing in a given field, and to remain in that field, in order that one should master it thoroughly. This enables the chemist not only to keep up with the latest advancements in that particular field, but—what is just as important—he is constantly in touch with industrialists, bankers, and scientists who are interested in that particular field. Such important contacts help him to establish a reputation and acquaintance in that particular branch of science, which cannot help but lead to his advancement and, eventually, financial independence."

Our pet question to these contributors is "What are the disadvantages of your work?" And Dr. Arnstein's answer would lead us to believe that here at last is that rarest of human creatures—a perfectly contented person.

"My work is essentially creative and I enjoy it immensely. I travel a great deal in foreign countries, and have learned that no race or nation has a mortgage on knowledge, on beauty, on science, or on the arts. Nothing broadens one's vision more, or enables one to look on every-day questions with a broader view, than travel, and since I enjoy my work it has no advantages at all.

"In fact, no professional work should have any advantages at all! If a man makes a mistake while he is influenced by his parents, or other circumstances, and finds himself in a field of endeavor where his soul cannot find expression, and where he does not enjoy the work for its own sake, he will never make a success of it. And the sooner he can be made to realize this, the sooner he should choose a profession, or a branch, which is more suitable for his talents, ambition, and his natural or acquired gifts."

PROMISED FOR THIS DEPARTMENT

The Chemist in Publicity Work
The Chemist as a Jeweler
The Chemist as a Lawyer

What else?

NORTH CAROLINA ENGINEERS SECURE REGISTRATION

Some interesting facts on the problems of the engineer as affected by registration and the establishment of standard fees, are brought out in an address reported in the March issue of the *North Carolina State Alumni News*.

President George F. Syme, in addressing a convention of the North Carolina Society of Engineers, said in part:

First: This society has been successful in securing the registration of engineers, the passage of a code of ethics, and in the establishment of a proper charge or fee system for professional services. This was a great and splendid step forward, and those of our membership who are engaged in private practice are availing themselves, as they properly should, of the benefits derived therefrom.

But what of that larger element of the society, the salaried men? What can the society do to aid them? This is admittedly a difficult problem; but engineering in general lives on the solution of difficult problems. The salaried engineer is at the mercy of his employer. If he protests against his inadequate salary, which is generally much less than the wage of a bricklayer or plasterer, he is told to get a better job if he is dissatisfied. He is too proud to organize a union to protect himself, so he hangs on, hoping for the dawn of a better day.

What can this society do about it? Frankly, I cannot say, except that it could appoint a committee to study the situation and report its recommendations, if any, to our next convention.

Second: I would call your attention to the pernicious practice of writing descriptions of property in deeds of conveyance by incompetent persons. This practice has been in effect in this State since the country was first settled.

Now that most of the surveys are made by registered surveyors or engineers, it seems that the public should be further protected by the passage of a law requiring the seal of a registered surveyor or engineer on every deed of conveyance which carries a description in metes and bounds of the property conveyed. The law should require that every such description give sufficient information to permit the platting of the parcel; and that the engineer or surveyor who affixes his seal to a description which cannot be plotted shall not only be fined, but shall have his license revoked.

The condition of most of the descriptions of property recorded in this State is appalling beyond belief. Go to any courthouse and take at random the descriptions of any four adjoining tracts of land. Try to plot them into one composite map. You will find that it simply can't

be done, save, perhaps, in exceptional cases. In the place of simple mathematical descriptions you will find a hopeless, senseless scramble of meaningless words.

There is not the slightest need for the continuation of this condition. A tract of land once surveyed should remain surveyed forever. In the future, if a part of it is sold off neither owner nor purchaser should be put to the expense of having it rerun. Only the dividing line need be run, and even this is not always necessary, for with a proper plot of the property based upon a correct survey, the dividing line can be drawn on the plot and its bearing and length can be scaled, or if necessary computed. Thus, without expense, the grantee may know that he is getting what he has paid for, and the grantor will know exactly what he has sold.

The requirement of the seal of a registered engineer or surveyor need in no way conflict with the writing of deeds by our legal brethren, and for this reason there should be no difficulty in securing the passage of such a bill. There would result, however, an immediate decrease in the number of lawsuits over disputed lines.

The public at large is unaware of the inherent danger of faulty descriptions and of the expense involved in surveying property every time it is sold. It should be warned and advised, and its support should be sought in obtaining legislation for its own protection in this respect.

Third: The attention of this society is called to the matter of laymen holding public office, either elective or appointive, for the control of engineering work.

This situation is analogous to the election of a physician as a supreme court judge, or the appointment of a minister as chief chemist of a large chemical plant.

There is no way of telling what this condition has cost the people of the State, but it no doubt is reflected in our tax burden.

A study of the organization and activities of the engineering departments of our cities and counties by a commission of competent engineers would reveal some very startling facts.

I realize that such positions are highly involved in local politics, and for this reason it will be difficult to retrieve them. The only hope of so doing is through legislative enactment.

The Meeting of the New York Chapter on April 4 will be addressed by Mr. Fred J. Hambly, President of the Canadian Institute of Chemistry.

THE INSTITUTE AND PUBLIC AFFAIRS

As evidence that The American Institute of Chemists is an organization devoted to the professional side of chemistry, and to the personal interests of those who practise it, it is gratifying to report that actual progress is being made in the matter of reclassifying municipal chemists. Dr. Breithut, Dr. Hale, and Mr. Kenney appeared at the hearing before the Municipal Cival Service Commission which was held on February 20th. We hope to publish a complete report of the proceedings in an early issue of *The* CHEMIST.

The theme of many addresses during the recent convention of the National Educational Association at Atlantic City was directly in line with what Dr. Gordon told us about the great need for training chemists so that they will be of greater practical value to future employers. The following excerpts are from an address, "Big Business Looks at the College Product," delivered before a joint meeting of college deans, and personnel groups, by Mr. Houlder Hudgins, assistant general manager of Mandel Brothers, Chicago department store.

"Greater collegiate emphasis on subjects which the college man and woman must master after graduation would reduce the amount of re-educating which business must now provide....

"Both the graduate and his employer have a right to expect that our educational system will provide basic knowledge which will make entrance into commerce a step which can be taken without friction....

"Every year thousands of young men are sent forth from our colleges and universities to seek careers in the professions, the arts, and business By far the largest proportion of them are absorbed by what is commonly known as 'Big Business'...a typical American development whose problems compare...with those of a family....It is most desirable that some measure of the attitude of the family be re-established so as to vitalize 'big business.'

"House organs, clubs, welfare organizations, and employee stock ownership plans have played a part in welding the various branches of big business. However, all of these attack the problems too late....More success can be attained by choosing the basic employees who will develop into specialized executives with an unspecialized business-wide point of view.

"We feel (in the Mandel organization) that a considerable amount of time has to be spent in re-educating college graduates along certain lines of every day business procedure and conduct, and are certain in our own

minds that all schools of higher education could well afford to reconsider their allottment of class work and study, as between purely cultural and vocational subjects, so as to increase the emphasis laid upon the fitting of their students for the work into which they ultimately expect to go."

Mr. Hudgins said further that his company likes to consider the college product as material for future executives because of their ability to think straight, to make friends, their tolerance, and their ambition. On the other hand, he has noted "the following weaknesses in the college product: impatience in waiting results, inability to realize that they work under a four-year handicap of lack of experience; the tendency to jump at conclusions; indifference to traditional business principles; a tendency not to have proper respect for persons whose experience is their main asset, and an inclination to take the short run, rather than the long run attitude toward themselves."

The article "Big Business and Chemical Education" in our January issue, and the Report of the Committee on Chemical Education, page 10 in this issue give a fair idea of what is being done to fit at least one class of college and university students for the work in which it is expected that they will be engaged after graduation.

The address on ethics which was delivered by Dr. Linsly R. Williams at the January meeting of the New York Chapter was brought to mind by the recent publicity given to the urgent demand of Dr. Rusby of the Columbia College of Pharmacy for an investigation of the alleged adulteration of drugs, especially ergot, digitalis, and ether.

The whole matter is too complicated for repetition here, but those who heard Dr. Williams' talk, or read the account of it in our February issue, may recall that he mentioned the problem of adulteration in drugs, especially ether, and left with us the question on ethical conduct for chemists:

"What stand would you take if you were employed by a firm whose products as manufactured did not conform to the claims made for them, or were actually worthless?"

PLEASE PASS THIS COPY OF *The* CHEMIST ON TO SOME ELIGIBLE CHEMIST WHO IS NOT YET A MEMBER OF THE INSTITUTE. ADDITIONAL COPIES AND AN APPLICATION BLANK MAY BE OBTAINED FROM THE SECRETARY, HOWARD S. NEIMAN. **SEE FORM, PAGE 32.**

THE NATIONAL COUNCIL

The seventieth meeting of the Council of the American Institute of Chemists was held at The Chemists' Club, 50 East 41st Street, New York, New York on Friday, February 21, 1930.

President Frederick E. Breithut presided. The following councilors and officers were present: Messrs. Henry Arnstein, M. L. Crossley, N. E. Gordon, W. M. Grosvenor, H. S. Neiman, Allen Rogers, A. P. Sachs, C. K. Simon, F. W. Zerban, and F. W. Zons.

The minutes of the previous meeting were approved.

The Treasurer reported a balance of $1887.34.

The Secretary read a letter from the Mack Printing Company relative to the allocation of dues to the subscription to *The* CHEMIST.

The Secretary read a letter from William Hoskins expressing his appreciation to The American Institute of Chemists for its telegram congratulating him on the occasion of his fiftieth anniversary as chemist, which was celebrated in Chicago.

The Secretary read a letter from Dr. J. N. Taylor, Chairman of the Washington Chapter, describing the activities of that Chapter, and the secretary was requested to write Dr. Taylor as to the procedure necessary for Federal licensing.

Dr. Breithut presented a suggestion from Miss Wall relating to obtaining advertisements for *The* CHEMIST through a paid representative, and the matter was referred to Dr. Breithut.

The matter of the present qualifications for membership was discussed at length with especial reference to the fact that under the present qualifications a person having taken a four years course in chemistry is not entitled to membership except by special action of the Council, and the matter was referred to the Educational Committee.

Dr. Breithut reported relative to a hearing before the Municipal Civil Service at which Dr. Breithut, Dr. Hale, and Mr. Kenney spoke.

Dr. Crossley presented a preliminary report of the Educational Committee, which was received after discussion and approved.

Dr. Rogers reported progress for the Committee on Minimum Fees and Salaries.

Miss Wall was empowered to assume the responsibilities incident to the editorship of *The* CHEMIST, all matters for publication to be submitted to the President for approval.

The Secretary presented the resignation of Charles L. Reese as Councilor, which resignation was accepted with regret. The President announced that the election of a Councilor to fill the unexpired term of Dr. Reese was in order. On motion made and seconded Dr. Ross A. Baker was

(Continued on page 23)

NEWS OF THE CHAPTERS

New York

The meeting was held in Room A of The Chemists' Club, at 8 P.M. on February 7, 1930. In the absence of Dr. Crossley, Dr. Frederick W. Zons, Vice-Chairman, presided. The Secretary reported that both the National Council and the Chapter Council had approved the abolition of Chapter dues. On a motion duly made and seconded it was decided that Section 12 of the Chapter By-Laws, dealing with the assessment and collection of dues, should be repealed. No other business was transacted.

The meeting was addressed by Mr. B. Whitney Ferguson, of the Chemistry Department of Brooklyn Technical High School. Mr. Ferguson spoke about the origin of High Schools, the development of the theory of the high school education, and in particular about the new technical course in chemistry which he is developing.

Following Mr. Ferguson's talk Mr. Jesse Whitsit of De Witt Clinton High School spoke about the cultural value of the high school course in Chemistry, and of high school education in general.

The great interest aroused by both speakers was shown by the vigorous discussion which followed the addresses.

The March meeting will be "Employers' Night," at which it is expected that one or more prominent speakers will discuss the point of view of the chemist-executive in branches of business which employ chemists.

KARL M. HERSTEIN,
Secretary

Washington

At the meeting of the Washington Chapter held February 17, 1930, Dr. S. L. Hilton, Past President of the American Pharmaceutical Association, gave an address on "Chemical Licensure."

Dr. Hilton traced the development of the present laws governing the licensing of pharmacists, and indicated where chemists might profit from the experience of the pharmacists. He strongly urged the American Institute of Chemists to direct its energies toward obtaining, through Congress, a licensing law for the District of Columbia which should be very carefully drawn. This might then serve as a model law for the States, thus eliminating conflicts which might arise should each state pass its own licensing law.

Following the address a lively discussion ensued during which Dr. Hilton described, among other things, some of the work which the Pharmaceutical Association is doing to solve some of the problems arising from the work of pharmacists in the Government Service.

O. E. MAY,
Secretary

EMPLOYMENT NOTES

The Bureau of Employment of The Chemists' Club is co-operating with the Institute so that some of the better positions listed with the Bureau may be brought to the attention of the Institute members. The Bureau welcomes correspondence with anyone interested in the following openings:

1067 Patent Attorney to act as assistant to the head of the patent department. Desire a man with chemical engineering training or its equivalent and patent experience, preferably in the PATENT OFFICE. Work in the far west.

1027 Man for chemical sales who has had thorough training in Agricultural Chemistry.

1013 Position in the east for a graduate metallurgist or chemical engineer, whose experience would qualify him for development work on electric furnaces used in heat treating, drawing, and nitriding. Prefer a man out of school three or four years.

1060 Physical Chemist for research on special Ferrous Alloys; also a Physical Chemist or Physicist for research in Magnetic Testing. Salaries about $3000 a year.

1065 Chemist with experience in manufacturing Waxes, or products in which waxes are used, for development and executive work.

1074 Executive Development Engineer experienced in development and construction of Tires and Tubes. Salary about $5000.

1079 Chemist experienced in manufacture of Ice Cream, and canning of Evaporated Milk.

The Bureau also has various positions available for men who have received their degrees, either bachelor's, master's, or doctor's, within the last two years.

It should of course be understood that Institute members would receive introductions to these employers only under the conditions of the Bureau's regular contract.

The National Council

(*Continued from page 21*)

duly nominated and unanimously elected to fill this vacancy on the Council.

Dr. Arnstein reported that progress was being made in arranging for the annual meeting in Philadelphia.

The Qualifications Committee submitted its report upon the applicants for membership. The names of those elected are given on page 31.

The Secretary stated that the present membership of the Institute is as follows: Fellows 481, Associates 56, Juniors 14, Honorary members 5, Life members 1, total 557.

There being no other business to present to the meeting, adjournment was taken.

HOWARD S. NEIMAN, *Secretary*

High School Chemistry

(*Continued from page 9*)

The two years of instruction is divided into four terms, with courses given in the following order—*Advanced General Chemistry, Qualitative Analysis, Industrial Chemistry,* and *Elementary Quantitative Analysis.*

The student enters the advanced general chemistry course after having completed one year of general chemistry, during which the practical application of the science has been stressed rather than the theory. He now takes up the theoretical subject-matter and proves by a series of experiments the truth of these theories, and thus lays a foundation for future use in the other courses.

The aim of the laboratory work is the manufacture of some every-day products on a semi-industrial scale in which the student will use the general processes that he has studied. He gradually becomes industrially minded and conceives how industry supplies his wants. Trips to manufacturing plants further aid him in changing his mental picture from test-tube quantities to large scale production. We want him to feel at home if he enters a plant to become an assistant to some college graduate. He will have acquired sufficient knowledge to carry to successful conclusion the directions that may be given him or successfully cope with an emergency if such should arise.

This condensed outline, which includes advanced, general, qualitative, industrial, and quantitative analysis looks like a miniature college course. *The school does not claim to produce chemists,* so there is no comparison. On the other hand, *it is not turning out half-baked chemists* as one might be prone to think. We are planning for the average high school student, so that he may profitably enter industry to earn a living. If we have pointed the way, and he enters college at night, both he and the industry have profited. I am glad to say that probably seventy-five per cent are doing this. As Mr. Colston has frequently said, "It is our policy to build on the serious interests of the student and to use these interests to promote his growth in any particular field."

Mr. Whitsit talked very informally, viewing the subject of high school chemistry from an entirely different angle. He is—you may or may not know—the last (in alphabetical order) but not least of those five co-authors whom we know as "Brownlee and Others" on the "First Principles of Chemistry," and other text-books. He expressed the opinion of a teacher in a school of 8700 boys, of whom about 2000 are taking chemistry among other courses.

He, too, sees the significance of that low figure, 10.7% of students taking

(*Continued on page 28*)

THE MEMBERS' FORUM

This department has been introduced as a meeting place for frank discussion of Institute activities, published articles, etc. Your co-operation in helping to make it a success will be some evidence that chemists are not quite so inarticulate as is commonly supposed.—EDITOR

Hail to *The* CHEMIST with its stiff new garb of blue! It has metamorphosed from the pamphlet stage to the full fledged magazine. Let us thank our friends who have made this attractive periodical possible, and congratulate the editor as well as the contributors who make it replete with interesting reading matter.

Articles such as those must surely rouse the somnolent laboratorians from their dreams to life's actual realities. We all needed the dusting off that several of the messages gave us.

Our chief problems are to hold our present members, and to interest them sufficiently so that they will have the urge to seek new members. The meetings must not be allowed to become trite. We must seek the advice and suggestions of the entire membership. We should discuss at our meetings such useful topics as *Business Organization and Management, Selling Service, Advertising, Tariff, etc.*

We must try to give our members something. We cannot expect them to live on hopes and promises, or to tell them that our work will benefit future generations of chemists. We must give them results right now.

The municipal chemists of New York have already profited by the tireless efforts of our leaders. Work on the reclassification of Navy Chemists is progressing.

To benefit industrial chemists, the latter themselves must become more articulate. True enough, much of their work is of a confidential nature. At least, let them keep reciting to those about them what they are doing or what they have accomplished in their particular plant. For example, let a salesman land a good order, and everyone knows it, from the janitor to the salesmanager. Why? The salesman himself goes about telling everybody how skillfully he put the deal across.

Contrast the chemist with the salesman. Let the chemist perfect a process or introduce an economy. Only the superintendent knows about it. Soon, even he forgets, and that is the end of the matter. This is because the chemist is too modest to brag about his own accomplishments. How is the world to know about us if we ourselves do not tell them?

Let us focus more of the laymen's attention upon our doings. Use your trade journals to let people know where you are and, whenever possible, tell them what you are doing, or thinking. Put in a good word for the Institute whenever and wherever you can. Use the letters *F. A. I. C.* after your name, just as do our English brethren the *F. I. C.*

It is incumbent on those of us who are heart and soul with the Institute to sell it to the other 24,000 chemists. All the aims of the Institute can be attained when we have the co-operation of all chemists. We must develop group consciousness. Chemists should adopt the method of tooting their horns just like salesmen. We must tell everybody what a great benefit we are to society. Then, we will get the recognition we seek.

Fellow chemists, put your shoulders to the wheel and thereby enable the Institute to help us all!

BENJAMIN LEVITT, *Secretary*,
Pennsylvania Chapter

February 17, 1930

As to the use of the designation letters which we all are entitled to place after our names, it might be interesting to have some expressions of opinion. Do you use your *F. A. I. C.* or *A. A. I. C.* at all? If so, when; and if not, why not?

WALTER R. CLARK will find an answer to his communication (January Forum) in the minutes of the latest meeting of the National Council. His inquiry about the permanent ineligibility of chemists with only four years of collegiate training has brought about an investigation which will doubtless react to general benefit.

Since good, persistent publicity is the breath of life to any cause like ours, the following will give you an idea of how individual members can help it along.

Letter from R. F. Revson to Mr. Edmund Flynn, of AROMATICS:

DEAR MR. FLYNN:

We do not believe that you would be impervious to receiving compliments upon the breezy little sheet "Aroma-Ticks," which arrived yesterday, and which the writer has enjoyed reading greatly.

You perhaps know that the writer is a chemist. The American Institute of Chemists is most anxious to squelch the practice of graft in industry, particularly that which is involved in the buying or selling of chemicals. Therefore, the writer is asking if he may quote your fifth paragraph on the first page of your issue, in our monthly periodical, *The* CHEMIST.

It is the writer's personal belief, and one that has doubtlessly been formed by your own experience, that many of those who give and accept graft are not chemists by actual training, nor do they deserve the title, through the attainment of a technical degree. However, the name of the profession must suffer, if those, who though unentitled to use the name of our profession do employ it to their own detriment and to the aspersion of the profession.

The American Institute of Chemists is endeavoring in its way to make the term *chemist* apply only to those who have the right to its use, through graduation from a school of recognized standing, and possessing sufficient technical practice. If you think that this subject is of sufficient interest, you will receive monthly (if you do not at present), accounts of what the American Institute of Chemists is doing for the profession.

Excerpt from Mr. Flynn's answer:

DEAR MR. REVSON:

It is not our purpose to start a crusade in connection with some bad conditions existing in the field covered by Aromatics, but in view of the fact that the publishers of this magazine have made an investment in this field, we are just as entirely interested in the prospects of the industry as is any manufacturer identified with it. Where we find a condition that is acting as a detriment to the industry, we will quickly state our convictions; and it is with this thought in mind that Aromatics will print articles

covering such conditions as adulteration, bootlegging, and the bribing of buyers, chemists, and perfumers in this field.

The clipping follows:

MALPRACTICES

AROMATICS will always feel free to discuss anyone at any time or any condition in this industry. But with two conditions—that we will try to be constructive when critical and our pages will always be open to rebuttal.

The lead story in our January issue covers two important evils in the essential oil division of this field, which should be eliminated and that very quickly—adulteration and bootlegging.

I know of three essential oil companies which would fold up the day that their alcohol withdrawal permits were revoked. And I ask that some fast-figuring logician explain to me the reason for the current quotations on Bergamot Oil—it is being quoted at from $2.25 to $4.00—and it is all *genuine* and *absolute*.

And while we are on the subject, here's another evil which is more than a little responsible for the present condition of the essential oil field—the bribing of perfumers and chemists. *E. g.*—A sample of a compound was obtained from a perfumer for which his company was paying $5.25—his own sample was resubmitted to him at $2.75, but he was so well greased that his expert nose couldn't function properly.

Excerpts from letter of Miss Calm M. Hoke to Mr. George F. Syme, State Highway Commission, North Carolina:

March 3, 1930

DEAR SIR:

Your talk before the North Carolina Society of Engineers, as reported in the Alumni News, is very interesting. Perhaps you know that the chemists are faced with many of the same problems that face the engineer—the need for registration, the elimination of the untrained or unfit, the protection of the salaried man, and so on.

The American Institute of Chemists, of which I am a member, is organized for the purpose of securing adequate recognition of the chemist as a professional person, and for solving these problems that we have in common with the engineers.

We publish a little Bulletin. I showed your article to its editor, and she hopes that we may have your permission to republish parts of your address.

Excerpt from Mr. Syme's answer:

March 5, 1930

DEAR MISS HOKE:

I shall feel very much honored to have this address in the Bulletin.

* * * * *

I am sending Miss Wall a copy of this letter so that she may feel no hesitancy about publishing any portion of the address which she thinks may be of interest to the chemists of the country.

SHOW YOUR INTEREST IN THE WORK OF THE INSTITUTE! SAY A GOOD WORD FOR IT WHEREVER AND WHENEVER YOU CAN.

High School Chemistry

(*Continued from page 24*)

school work in science, as contrasted with the higher figures for English, and foreign languages. He ventured the opinion that there is "much bunk in high school teaching; in mathematics, certainly in languages, and very possibly in chemistry." He conjured up the average layman's mental picture of a chemist, or any scientist, as a person who is always mysteriously experimenting with something, and added:

"Experimenting is not a science. The individual alchemists experimented for centuries, but they did not form a science. There was no real science until groups co-operated to arrive at the truth of scientific thought for the benefit of society.

"The war engendered an entirely new type of thinking. Every thinker nowadays wants to be *scientific*, without the knowledge of what constitutes the essential nature of *science*. The criticism would seem to be justified that often the persons who are supposed to be the scientists, are very scientific in their laboratories, and anything but scientific outside of them."

The discussion was very heated and very long; one group was still at it until about midnight. Every point which was brought up was indicative of serious thought. MR. WRIGHT sees the difference in schools to consist in that the average high school aims at general *education*, whereas a technical high school aims at preparatory technical *training*. He thinks that the ideal course would "forget details, and concentrate on teaching the use of the brains."

DR. GROSVENOR discussed *scientific thinking* as "entirely devoid of feeling"—and very rarely encountered. He believes that our educational system is upside down; that kindergarten teachers should be the very best teachers obtainable, and should be paid the highest salaries, because they have the training of children's minds during their formative period.

With the revolutionizing of the entire educational system the Institute is not concerned—we having troubles of our own. But if the American Institute of Chemists, by upholding high ideals of adequate education and training for its own members, can do something to improve conditions in the teaching and study of chemistry in the schools, perhaps some day its influence may be felt in the methods of teaching and studying the other sciences, and the mathematics, economics, languages, and other branches with which chemistry is more or less closely correlated. F. E. W.

EDITORIAL

MUTUAL APPRECIATION

The appearance and contents of the January issue brought forth many expressions of appreciation from Institute members, and a gratifying stir of interest among outsiders, with requests for application blanks, back issues, a permanent place on our mailing list, etc., etc. Fine! The more stir it creates, and the more chemists it interests in the Institute, the better pleased everyone will be.

Editorial modesty and lack of space prevent our quoting all these tributes, but we do want you to know what Dr. Frederick W. Zons, an Institute member, and Editor of *The Indicator* said in his March issue about

The Chemist

Our title refers to a publication, the sparkling character of which asserts itself with the first glance at its cover and makes it symbolic of its living title.

We have previously seen the publication of The American Institute of Chemists but the new dress, bright clear type, fine arrangement, and its growth to 36 pages in the January issue, made us rub our eyes. We hardly recognized our neighbor.

Without formality THE CHEMIST greets the eye with a summary of the Institute's objectives. The obvious question of those uninitiated is promptly met.

Then we glance through its pages and note such titles as "Big Business and Chemical Education," "The Relation of Chemistry to Banking," "The Relation of the Institute to the Profession of Chemistry," "The Chemist and Chemical Contracts" and so on, with news of the chapters and a Members' Forum with a number of real live discussions. The editor presents a real good job. We can almost hear the booklet breathe.

The spirit of activity characteristic of the professional chemist pervades its pages. A weary scientist has no place here.

That reminds us of the proverbial mental picture we all carry of a scientist asleep over his books after a fatiguing search through the literature. This shows how we have been impressed by the intellectual side of science. Can you conceive a picture of a professional man asleep at his profession? We have no such definite mental picture of the professional chemist.

This suggests the question as to whether our training and proclivity for intensive research has not actually made us unconscious of ourselves. Have we in the past given due consideration to showing the relationship of our chemical profession to the usual and important human activities? Do we as chemists move about with the social satisfaction and respect that characterizes the legal profession? Almost every human activity can find a need for legal service. How often does the ordinary citizen realize his obligation to the chemist?

Our own aloofness from common everyday chemical discussion except with chemists and our tendency toward purely intellectual pursuits leaves little wonder that for many years the "vulgus" has looked upon the scientist in general and the chemist in particular as a curiosity. And that is just what we should expect until we learn to reconcile our apparent idiosyncrasies with ordinary human endeavors, and take our laymen neighbors into our confidence.

Such is the thought that was aroused in us by that pulsating publication, and we felt inclined to agree with the statement once made at one of our sectional

meetings that now having made a chemist of the man it may be well to make a man of the chemist. F. W. Z.

There it is again—a reference to "making a human being out of a chemist!" It hardly seems possible, but evidently chemists must be advertised and sold to themselves. And if so, *The* CHEMIST should show the way.

This is truly your own paper. Please take advantage of this and send us contributions which express your views on matters of general interest, and especially on matters of particular interest to the professional side of chemical work.

This paper is concerned with the activities and interests of *chemists* as persons, not with the wonders of chemistry as a science. Once you succeed in making yourself "chemist-conscious" you will come across many items in the public press and elsewhere that are of interest to *chemists* and therefore worthy of passing on to our membership at large through the medium of these pages.

We enjoy editing your paper; and the more contributions you send us to *edit*, the better we shall like it.

ALL COMMUNICATIONS INTENDED FOR PUBLICATION SHOULD BE SENT DIRECTLY TO THE EDITOR, FLORENCE E. WALL, 345 EAST 68TH STREET, NEW YORK CITY.

THE NEW MEMBERS

Fellows

JACOB C. GOLDSTEIN, Chemist and Fur Dyer, A. Hollander & Sons, Inc., 143 East Kinney Street, Newark, New Jersey.

MISS MONA OSER, Biochemist, Food Research Laboratories, Inc., 114 East 32nd Street, New York, N. Y.

Associates

LLOYD W. DAVIS, Research Chemist, National Oil Products Company, Harrison, New Jersey.

LONNIE CLIFTON ELMORE, Head of Science Department, Fort Union Military Academy, Fort Union, Virginia.

JOHN M. NICOLL, American Can Co., Research Division, Maywood, Illinois.

Junior

MISS MILDRED A. JOHNSON, Analytical Chemist, Lucius Pitkin, Inc., 47 Fulton Street, New York, N. Y.

Please cut these names out and paste them in your new Year-Book.

NOTES FOR YOUR YEAR-BOOK

Please keep your book up to date by making these corrections at once:

ANDRES SOLOMONOFF (p. 37), 3809 Cypress Avenue, Sea Gate, Coney Island, N. Y.

JOSEPH W. SPISELMAN (p. 42), 1269-E 18th Street, Brooklyn, N. Y., Midwood Station.

JOHN A. STEFFENS (p. 37), 38 Barrows Avenue, Rutherford, N. J.

RAPHAEL F. REVSON (p. 35), 161 West 75th Street, New York, N. Y.

PERSONAL

R. F. Revson has recently resigned from his position of chemist in charge of sales development with Hammill and Gillespie. He is now available for consulting work, specializing in cosmetic chemistry. Please communicate with Mr. Revson only at the address given above, 161 West 75th Street, New York, N. Y.

"*The* CHEMIST IS YOUR PAPER; MAKE IT YOUR PAPER!"

Objectives of the American Institute of Chemists

To give chemists professional solidarity.

To put the profession back of a definite code of ethics.

To insist on adequate training and experience qualifications.

To educate the public to an understanding of what a chemist is.

To protect the public and the profession by fighting quackery.

To raise the economic status of chemists.

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HOWARD S. NEIMAN, *Secretary*
The American Institute of Chemists
233 Broadway
New York, N. Y.

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